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US EPA RECORDS CENTER REGION 5



COMPLIANCE SAMPLING INSPECTION

INTERLAKE, INC.
IRON & STEEL DIVISION

Coke Oven and Iron Furnace
Plants - NPDES #IL0002101

DATE:

June 19, 1985

INTERVIEWED:

David Holmberg, Manager,
Environmental Services Dept.

INSPECTED BY:

Rob Sulski, FOS-Maywood
Tony McDaniels, FOS-Maywood

Summary of Findings

The following deficiencies in NPDES and Agency requirements were noted during the inspection and the drafting of this report:

1. Flow rates are not measured at the Furnace Plant, Outfalls 001, 002 and 004.
2. Total Suspended Solids excursions are routine at the Coke Plant discharge Outfall 003. (Note, an Agency May 17, 1985, CIL addresses this deficiency.)
3. All permitted discharges are routinely sampled or tested more frequently than required by the permit, but the extra sample results are not reported on DMRs.
4. Outfall 002 monitoring is not always representative of the discharge; although 002 discharges stormwater; it is only sampled when "B" blast furnace cooling water is flowing.
5. Both the Coke and the Furnace plants operate non-NPDES related pre-treatment works under expired and/or non-existent operating permits.
6. The permittee is behind schedule in completing their Characterization Survey and Best Management Practice plan (see permit Special Condition #9).

An additional, more complicated deficiency concerns the potential for non-point pollution when storm water contacts various material stock piles and site grounds and flows to the river. This problem has been noted in previous inspections and is the focus of the Survey and BMP plan.

Finally, the permittee is requesting permit modifications to switch the sampling location of the Coke Plant Intake and to change oil and grease composite sampling procedures.

Recommendations

1. Make a CIC or send a CIL re deficiencies 1, 3, 4 and 5 above.
2. Grant the permittee's permit modification request. This and other FOS engineers have no objections.
3. Request from the permittee, a copy of their BMP plan (permit-mandated completion date is September 13, 1985) for Agency review, and check the files for the Characterization Survey report (permit mandated submission schedule is August 14, 1985).

Introduction

A Compliance Sampling Inspection was conducted at the subject facility on the above date. The inspection was routine, in accordance with Major facility inspections commitments. Form 3560-3 and supporting materials are attached.

Facility Description

Interlake, Inc. manufactures ferrous and non-ferrous metals products including: finished materials handling, storage and packaging items; rolled, die-cast and finished stocks and components; and powders. Interlake products are used by industries in materials movement and storage, metals forming and finishing, high technology, and industrial and pharmaceutical chemicals manufacturing. Interlake recently expanded their high tech materials production capabilities by acquiring Chem-tronics (see Attachments A and B).

Approximately 25 years ago Interlake took over Acme Iron and Riverdale Steel. The two facilities are now known as, respectively, the Chicago Coke and Furnace Plants and the Riverdale Plant, and compose Interlake's Iron and Steel Division. The three plants combined constitute an integrated steel manufacturing operation. Figure 1 shows their location. The Chicago Coke and Furnace Plants (see Figure 2) produce coke and iron for the Riverdale plant steel furnaces.

Chicago Coke Plant

Materials throughput at the Coke Plant begins when stockpiled coals are blended and "charged" into coke oven batteries. The conversion of coal to coke, or the baking off of volatiles to reduce coal to a

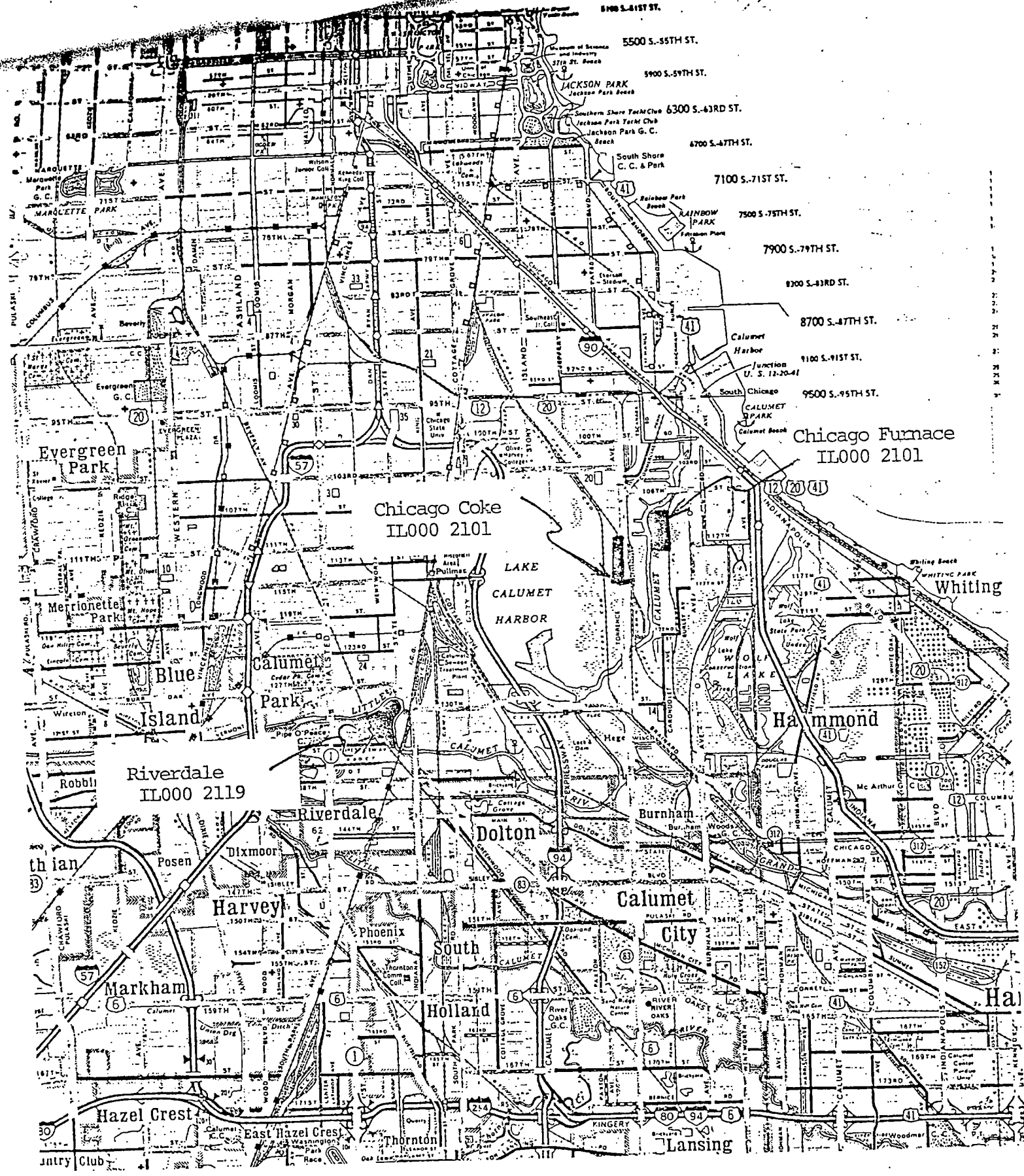


Figure 1. Location of the Iron and Steel Division plants of Interlake, Inc.

high carbon content residue, takes approximately 16 hours. Oven gases are reclaimed for tars, oils, gas and other products including ammonia sulfate and naphthalene. Gases are returned or sent to and burned in the coke ovens and blast furnaces to provide heat for those operations, and coke is quenched (water contact cooled) and stockpiled for later use in steel making. Presently, a still is being installed to recover ammonia from the ammonia sulfate manufacturing process.

The Coke Plant has only one NPDES related discharge (see Figure 3). It meets a Calumet River slip at Outfall 003 and is comprised of primary cooler heat exchanger and by-products plant non-contact cooling waters and stormwater runoff.

Most process wastewaters undergo oil-water separation, aeration and sedimentation. Pre-treated wastewater is discharged to the sanitary sewer along with spent ammonia liquor ("mother liquor" used in ammonia sulfate production), cooling tower blowdown, condensates, some coke pile stormwater runoff and sanitary sewage. Indirect discharges at the plant are subject to 40 CFR 420 (A), Pre-treatment Standards for the Iron and Steel Category, Coke Making Subcategory.

Solid wastes generated at the plant include sedimentation basin sludge and tar bottoms. The former is shipped offsite to a landfill while the latter is blended with the coking coal.

Chicago Furnace Plant

Materials throughput at the Furnace Plant begins when stockpiled ore, taconite and limestone are blended and converted to iron in one of two blast furnaces, "A" or "B". The total hot metal production capacity of the furnaces is 4400 tons per day. Hot iron is then pig cast or placed in "bottle" or "torpedo" cars for rail transport to Riverdale. Furnace air is heated in stoves and driven into the furnaces by turbo-blowers. Furnace gases are then venturi scrubbed and run through electrostatic precipitators. Slag is moved to a cooling platform for quenching. Wastewater flows are depicted in Figure 4. NPDES-related flows are discharged to the river at 3 outfalls as follows:

Outfall 001 - stormwater runoff and non-contact turbo-blower, stove and "A" blast furnace cooling waters.

Outfall 002 - stormwater runoff and non-contact "B" blast furnace cooling water.

Outfall 004 - stormwater runoff and non-contact turbo-blower cooling water.

Outfall 004 - can operate as either an intake (secondary) or a discharge slip depending on the river's stage or the well level at the primary intake.

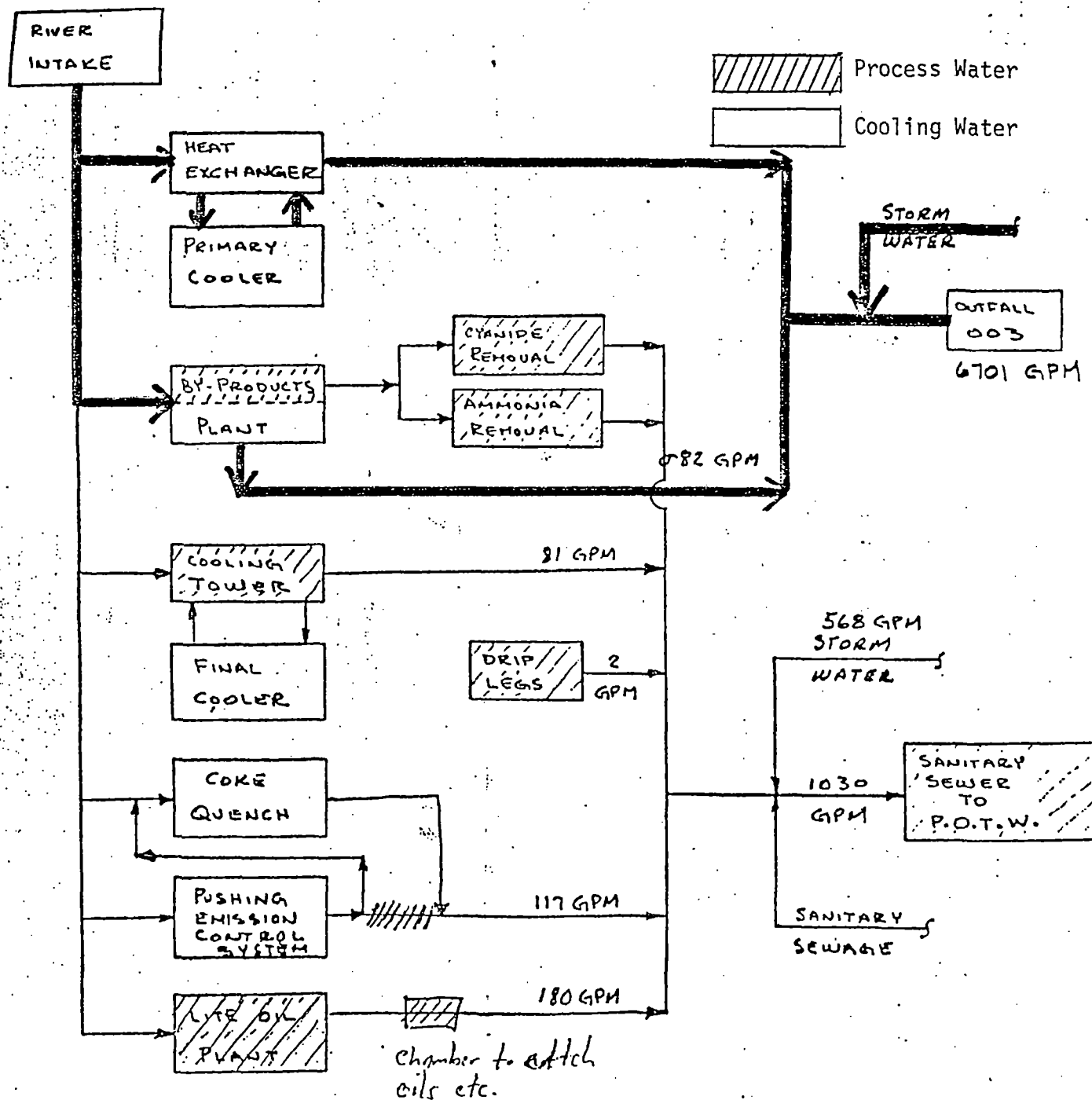


Figure 3. Wastewater flows at Chicago Coke Plant (NPDES flows highlighted).

INTERLAKE, INC.
NPDES IL000210

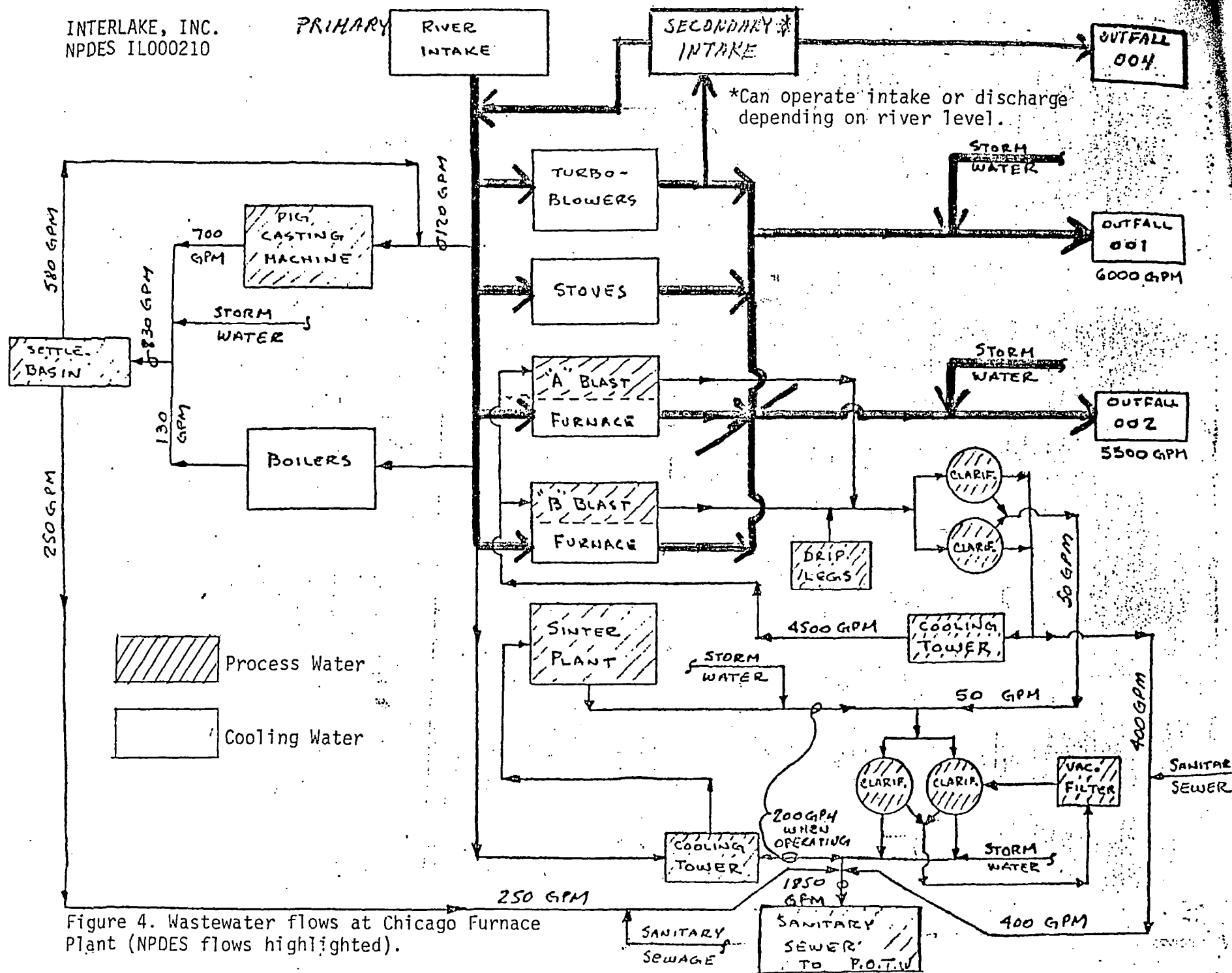


Figure 4. Wastewater flows at Chicago Furnace Plant (NPDES flows highlighted).

Indirect discharges from the plant consist of boiler blowdown, pig cast cooling water, stormwater runoff, sanitary sewage, recycle system blowdown and secondary clarifier overflows. In the recycle system scrubber wastewater is clarified, cooled, pH-adjusted and sent back to the scrubbers. Make up water is from the river, and underflows from the clarifiers are further treated in a second pair of clarifiers. Second-stage clarifier sludge is dewatered by vacuum filters. According to the permittee's representative, the Furnace Plant discharges are not subject to any Categorical Pretreatment Limits.

By-product materials and/or solid wastes generated at Furnace Plant consist of vacuum filter cakes, flue dust, ore and limestone fines, slag and skimmed oil. Slag is sold as a component in construction aggregates. The remaining solids are classified as non-bearing, sinterable materials. Over the last seven years, however, since the sinter plant was taken out of service, the solids have been stockpiled on site.

Comments to Form 3560-3

Section H - Permit Verification

The permit was reissued effective September 13, 1984 and a new discharge, Outfall 004, was added.

Section J - Compliance Schedule

The permittee appears to be behind schedule in finishing up their Characterization Survey (CS) and Best Management Practice (BMP) plan. At the time of the inspection the permittee was still compiling CS sample data for consideration in formulating the BMP. The permit-mandated schedule dates for the submission of a CS report and the implementation of the BMP plan are, respectively, August 13 and September 13, 1985. As of the date of this report the Maywood office has not received a copy of the CS report and the BMP plan is not complete.

Section K - Self-Monitoring Program

Part 1 - Flow measurement

Flows are not measured at the Furnace Plant Outfalls 001, 002 and 004. ATTACHMENT C and D show that DMR reported flows for the above outfalls are the same each month. The permittee's representative stated that DMR reported flows for these outfalls are based on pump curve estimates and/or water balance determinations made several years ago.

CHICAGO COKE & FURNACE

Part 2 - Sampling

Apparent deficiencies noted in this area include;

1. The outfalls are routinely samples more often than the permit required frequency, both as a part of the Characterization Survey and otherwise, but all of the extra data is not included on the DMRs.
2. The permittee's monitoring at Outfall 002 is not representative of the discharge; although this outfall discharges stormwater runoff, it is sampled only when "B" blast furnace cooling water is flowing - which is rarely.

Part 3 - Laboratory

The permittee is requesting they be allowed to composite oil and grease samples by pouring aliquotes directly into the laboratory funnel apparatus used for oil determinations. Apparently satisfying composite sample requirements, this method would alleviate the burden of performing multiple determinations necessary in mathematical composites.

Effluent Characteristics

According to DMRs submitted over the last year (see annual summary in ATTACHMENTS C AND D), the permittee has been meeting permit effluent limits for all parameters at all the outfalls except for Total Suspended Solids at the Coke Plant Outfall 003. In response to a May 14, 1985 CIL regarding the excursions, the permittee contended that in light of the river quality, water at the actual Coke Plant Intake, ORI (see figure in ATTACHMENT E), net excursions have likely not occurred; the water at ORI is of poorer quality than that at the permit-mandated sample point OOR. The permittee further requests that they be allowed to use ORI as a sample location. Based on the permittee's data in ATTACHMENT E and Agency sample results, ATTACHMENT F, it doesn't appear to make much difference which location the permittee uses.

Additional Remarks

Both the Coke and the Furnace Plants operate pre-treatment works, at least one of which is subject to Categorical PSEs. An ammonia still is being installed to bring the Coke Plant into compliance. A review of Agency files shows that the State Permits for these works are long expired.

Robert B. Sulski

Robert B. Sulski, EPE

RBS:bh:0106B

10/15/85

- CAS
- USEPA (2)
- A. Leder
- D. Wagner

COMPLIANCE EVALUATION INSPECTION
Supplemental Notes

INTERLAKE STEEL - Chicago Coke & Blast Furnace
10730 S. Burley Avenue, Chicago, IL 60617
NPDES No. IL - 0002101

INSPECTION DATE: - 12/16/80

Interlake Personnel Interviewed:

David Holmberg - Manager - Environmental Services - Iron & Steel Division
Frank C. Gambol Jr. - Blast Furnace Superintendent
Jack Burns - Utility Supt. - Blast Furnace
Ron Webster - Senior Environmental Engineer
Tim Early - Environmental Control Technician

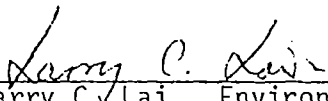
Accompanied by: - Judy Carter CAS - Springfield

Topics covered here are:

- a) Significance of DMR effluent data
 - b) Permit verification
 - c) Operational deficiencies of the Blast Furnace Plant
 - d) Flow measurements and their significance in the issuance of a new permit.
 - e) The Interlake laboratory.
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- a) Data presented in Section B of the 3560-3 form is from the November '80 DMR. It has been pointed out in the past that data currently reported on DMRs are not representative as a true background level cannot be established. This is due to an unknown and varying detention time within the Interlake System.
 - b) The presence of an unpermitted discharge at Interlake was noted in the 2/5/80 inspection and is still operational. A water intake point can (does) occasionally act as a discharge.
 - c) During a tour of the blast furnace plant, it was noted that a brown liquid was spilling from the plant property into the Calumet River. Investigation of the source of this discharge revealed a portable pump seemingly draining a cooling tower sump. The contractor employed for this work was
Johnny Jones Marine Services Inc.
110 Franklin Lane
Buffalo Grove, IL 60090

The owner, Johnny Jones was supervising cleaning operations. When confronted with the fact that he was causing pollution of the Calumet River, Mr. Jones discontinued operations. Mr. Frank Gambol - the superintendent of Blast Furnace operations was asked for details of this operation. He indicated the following:

1. An earthen dike was supposed to contain the discharge and allow for settling of any solids.
 2. The usual protocol for disposal of such substances would entail use of the recycle system clarifier, this being down for maintenance.
 3. An alternate disposal procedure could be employed that would facilitate the remainder of cleaning operations. Details of the plan are contained in the attached letter. Photographic notes of the incident are attached.
- d) Flow measurements of Interlakes discharges are based on pump curves. The proposed permit for this facility incorporates a series of mass balances for the parameters of concern. All such mass balances would be dependent on reliable flow data - data from pump curves is not sufficiently accurate to allow for realistic evaluation of any mass balance data generated.
- e) As reported in the previous inspection Interlakes' laboratory facilities are faultless. They have been certified by the State for Metal and bacteriological analyses (10/1/79).


Larry C. Lai, Environmental
Protection Engineer, Maywood

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